Rocky Flats Project Office

Self-Assessment and Causal Analysis

of the

Safety Oversight Program

January 2004

PURPOSE

The Rocky Flats Project Office (RFPO) recognizes that its safety oversight program requires improvement in order to achieve its mission of safe closure of the Rocky Flats Environmental Technology Site (RFETS). This evaluation and causal analysis is intended to assess the current status of the safety oversight program, document specific weaknesses and identify the root and contributing causes for those weaknesses.

Visits to the site by the Defense Nuclear Facilities Safety Board (DNFSB) staff over the latter half of 2003 provided the impetus for performing this assessment and causal analysis. The DNFSB's evaluation of the Department of Energy's oversight at the RFETS was documented by a letter to the Secretary of Energy on December 2, 2003. The DNFSB letter was the culmination of several visits to the RFETS following a glovebox fire in Building 371. This assessment and causal analysis will be utilized to develop a comprehensive corrective action plan focused on improving the scope, depth, and integration of the RFPO oversight program.

SCOPE

The December 2, 2003 letter from the DNFSB focused largely on the May 6, 2003 glovebox fire in Building 371, and weaknesses in the Integrated Safety Management System at the RFETS. This evaluation examined the overall safety oversight program implemented by the Department of Energy at the RFETS, and thus encompassed the focus areas of the DNFSB letter. Oversight of the major nuclear and non-nuclear facilities were evaluated as well as the infrastructure to document, transmit, track, and close observations and findings. The evaluation included a review of the formal and informal oversight techniques employed by the RFPO, and the management systems supporting these efforts.

APPROACH

The DNFSB letter and its attachment were reviewed by current senior RFPO managers and selected staff members. Although there are a few details in the DNFSB report that the RFPO disagrees with as factually incorrect, the conclusion that the RFPO safety oversight program has degraded is not disputed. The assessment team was established to evaluate in detail the RFPO oversight program, document the specific weaknesses and determine their cause(s). Traditional methodologies were employed to accomplish the assessment potion including personnel interviews and document reviews.

The team worked on a compressed schedule, and had to deal with certain gaps in information and historical decision making processes due to the unavailability of personnel due to a recent reduction in force. The statements of individual's were not accepted as fact unless corroborated by documentation or similar statements from other

individuals. Upon completing the identification of what is believed to be a fairly comprehensive set of deficiencies an analysis was performed to determine their underlying causes. The primary causal analysis technique employed was change analysis, although some direct derivation techniques were employed.

RESULTS

The team identified deficiencies in all facets of the safety oversight program. These individual deficiencies were subsequently analyzed and combined into six (6) findings. Five of the findings fell directly under the auspices of the safety oversight program and lead the team to generate a significant issue involving the safety oversight program. The sixth finding, although related to oversight activities, was considered significant enough to be singularly elevated to an issue because it involved a commitment to an external oversight organization, in this case the DNFSB. This issues and supporting findings detailed below capture systemic breakdowns in the RFFO safety oversight program. The Rocky Flats Field Office (RFFO) name changed in January 2004 to Rocky Flats Project Office. The use of the RFFO acronym reflects to name at the time of the incident and the development of the findings.

Issue 1: The RFFO safety oversight program has degraded over the past two years.

This issue is based upon the five findings described below and represents a programmatic breakdown in a fundamental responsibility of the field office. The findings address all levels of the safety oversight program, from policy to assessment performance and corrective action tracking.

Finding 1: RFFO management gave the perception that safety had become less important.

This finding is based almost exclusively upon personnel interviews. Several safety personnel felt that management did not really want them to be identifying safety concerns. They felt management's primary concern was schedule acceleration and that thorough safety oversight was an impediment to that objective. It is also possible for these statements to be viewed as an excuse for poor individual performance.

The arrival of a new RFFO Manager in mid-2002 brought a clear change in management style. The new RFFO Manager challenged his staff to support and defend their conclusions and recommendations with facts. This approach included requiring his safety staff to present convincing data when they believed a safety issue existed. In addition, prior to advocating safety related responses that could impact schedules (i.e., safety stand-downs or safety pauses) data demonstrating the effectiveness of these tools was requested. The RFFO safety organization was not accustomed to this approach and perceived these requests to be an indication of reduced concern for the safety program.

During interviews safety personnel also expressed concern that RFFO senior management had informal discussions on safety issues with contractor management, with no RFFO safety personnel present. Several personnel also indicated that the Manager became more energized on issues potentially impacting schedule, as compared to issues impacting safety. The combination of the conditions described above produced the perception that safety had become less important. However, it should be noted that the Manager never stated that safety was unimportant or less important, rather emphasizing the vital role of safe work performance.

Finding 2: The RFFO formal assessment program was poorly utilized.

The RFFO Manual 220.1, Closure Project Oversight Program (CPOP), describes and proceduralizes a rigorous oversight and assessment program. The CPOP manual has chapters ranging from assessment performance to verification and closure of assessment findings. It includes the Rocky Flats Corrective Action Tracking System (for tracking assessment results) as well as use of the Oversight and Evaluation (O&E) database. There are chapters dedicated to self-assessment and Technical Evaluation Reports (TERs). Unfortunately, the CPOP appears to have been virtually ignored, particularly in 2003. The following specific weaknesses were identified in the evaluation.

- The RFFO integrated assessment schedule was no longer maintained. It is unclear why this was allowed to occur. The individual responsible for maintaining the assessment schedule and tracking schedule performance was assigned a new position in late 2002, and the responsibility was apparently not reassigned.
- A substantial decrease in the number of formal assessments performed by the RFFO occurred between 2002 and 2003. Records indicate only five assessments were performed in 2003.
- There were no records of TERs over the past twelve months. The TER process is designed to document technical issues identified by RFFO staff, forwarding them to the appropriate RFFO Subject Matter Expert, and tracking the issue to closure.

The CPOP remains an active and appropriate RFFO procedure and provides the necessary formality for achieving an effective oversight posture. However, the failure to use this document represents a significant programmatic weakness.

Finding 3. Over reliance on Facility Representatives for performing safety oversight.

Although the Facility Representatives comprised only twenty-five (25) percent of the Safety Programs organization they represented the vast majority of the documented safety oversight performed by the RFFO. In addition, based upon the indicators below it is clear that senior management relied primarily on their assessment of operational safety.

- More than 95% of the entries in the O&E database are from the Facility Representatives. The CPOP requires the use of the O&E database by all RFFO staff and managers to document routine oversight activities performed. This evaluation also noted inconsistent O&E reporting by the Facility Representatives despite the impressive percentage of entries they generated.
- A review of Monthly Safety Briefings for 2003 indicates a clear focus on Facility Representative assessment of activities based upon briefing time allotted.
- The performance expectations for Safety Programs personnel, other than Facility Representatives, were not closely monitored by direct supervision or senior management. Consequently, there is little documentation of oversight activities performed.
- The majority of the Safety and Health Division positions in the RFFO organization were eliminated in the Position and Functional Analysis published eleven months before the effective date of the Reduction in Force.
- A large percentage of Safety and Health Division personnel were focused on finding alternative employment during 2003, and unlike Facility Representatives, participated in numerous voluntary details to other agencies. It should also be noted that several Facility Representatives left during 2003, but these individuals retired or requested reassignments to other EM sites (and one to the Golden Field Office).

Management relied substantially on Facility Representative efforts and failed to complement their daily oversight with the necessary support from other SMEs in the project and safety organizations.

Finding 4. The RFFO did not formally transmit safety observations and findings or track them to closure.

The formal transmittal of safety issues and concerns from the RFFO staff did not occur. The CPOP provided the necessary guidance, but more informal and timely methods were used.

- Facility Representatives' observations and deficiencies were transmitted via e-mail to the Safety Analysis Center. Typically, O&E database entries were reviewed by the Field Assessment Division Director daily and those deemed to be notable were transmitted electronically to the contractor for inclusion in the Safety Analysis Center (SAC) daily report. Although this method achieved timeliness, it lacked formality and often tended to reduce the RFFO's involvement in issue closure and verification.
- Facility Representative observations and findings were not tracked to closure. As stated above, the SAC process was often a point of closure for RFFO issues. However, this closure process is not consistent with the CPOP and did not produce an auditable record. Also, very few follow-up entries were found in the O&E database documenting corrective actions taken in response to an earlier O&E.
- Verification of corrective action implementation performed on the informally

transmitted issues and concerns was also missing from the record. While it is not expected that all corrective actions will be verified, evidence of a sampling process was not found.

- The RCATS database was the official database for tracking issues and concerns (per the CPOP), and this database was archived in early 2003. A replacement system for the RCATS did not exist when the system was archived and does not exist currently.

Finding 5. The Oversight and Evaluation (O&E) database was relied upon as the primary documentation of oversight, but was not effectively implemented.

The O&E database is included in the CPOP, and expectations for its use are documented. Facility Representative Work Plans were reviewed and found to explicitly require the use of this database for documenting oversight activities. Other organizational work plans were not reviewed, but personnel acknowledged the requirement for using the database.

- As stated earlier over 95% of all O&E entries were made by Facility Representatives. Other Safety Programs organizations had few, if any, entries in 2003. This lack of documentation from other safety organizations represents a gap in verifiable oversight activities performed.
- RFFO project personnel had a modest number of entries regarding Predetermined Work Activities. The entries from project personnel establish the fact that entering data into the O&E was a known requirement.
- A review of Facility Representative entries identified a disturbing trend: entries appear to have drifted towards documenting events, rather than documenting actual oversight activities performed. Discussions with several Facility Representatives identified confusion as to what was required to be entered. Some individuals felt it unnecessary to document routine oversight that did not identify a concern. They indicated that no entry for a particular day meant that observed activities were meeting expectations. They also indicated a desire to document events such as skin contaminations for trending purposes.
- Facility Representative logkeeping did not fill in the gaps in O&E to definitively ascertain what activities were observed and how frequently. When the O&E database was first released and requirements issued for its use, some Facility Representatives complained about duplicate reporting (in logs and in O&E) of oversight performed. It was decided, but not documented, that you had to document your oversight in at least one of these mediums. However, any deficiencies had to be in the O&E. Knowledge of this direction has apparently been forgotten over time.
- Several individuals stated they had not made O&E entries because they were unaware of the specific requirement to use it (in the CPOP), and did not know how to access the database.

Issue 2 / Finding 6. RFFO's response (and subsequent commitment) to the DNFSB's 2002 concern and letter regarding work control was ineffective.

This finding was elevated to a stand alone issue due to its significance, and the desire to have a separate causal analysis (due to the distinct nature of this finding). In 2002 the RFFO committed to perform a series of reviews on work packages in order to improve work control at the RFETS. Although the RFFO efforts were well intended they failed to produce the desired outcome for the following reasons:

- The selection process for identifying specific work packages for review was not documented, and was left to the discretion of an individual who was not an SME on work control. Consequently, the work packages selected were often already closed by the time RFFO staff received them.
- The RFFO review often resembled a quality control check more than an objective evaluation of work package content and appropriateness. This was exacerbated by the number of closed work packages reviewed.
- The desired results were not well understood, nor was the process for performing the reviews. Although the individuals performing the review were not work control SMEs, they had been trained on the RFETS Integrated Work Control Program, and briefed on what to look for when evaluating the packages.
- Walkdowns of high hazard work packages were performed sporadically and were reviewer dependent. A requirement to walkdown work areas was not established, nor were other activities such as attending work package development meetings.

CAUSES

As mentioned in the Approach section of this report, causal analysis was performed on the identified issues using change analysis and direct derivation techniques. The causal analysis is performed to ensure that the corrective action plan will focus on the areas requiring improvement in order to avoid of recurrence of the stated issues. The root cause for issue one if followed by the direct and contributing causes for issue 1, and then the causes for issue two are presented.

Issue 1 Root Cause: RFFO senior management became complacent regarding safety performance at the site, partly due to satisfaction with the improved safety trend statistics.

When the new senior management team (Manager, Deputy Manager, and Assistant Manager for Safety) arrived at the RFETS in 2002 they were provided numerous briefings on all aspects of site status and performance metrics. With respect to site safety, the briefings presented contained graphs and charts of safety performance in comparison to prior years. Overall, the safety metrics (i.e., criticality infractions, skin contaminations, lost work days, OSHA reportable events, etc.) sent a positive message regarding safety performance at the site. The statistical data in combination with no significant personnel injuries created a comfort level with the status quo. This ultimately led to complacency regarding the safety oversight program, and the belief that the field office could be reducing the rigor of its safety oversight.

Direct and Contributing Causes:

Senior management's commitment to safety was ambiguous.

The RFFO Manager stated he wanted work performed safely and he wanted to accelerate schedule. Some RFFO staff believed that these desires were in conflict, and that questioning the effectiveness of a safety stand-down was an example of surreptitious means to keep work on or ahead of schedule. Although this was not the former Manager's intent, the lack of a formal safety policy made his actual position on safety unclear to staff members.

RFFO senior managers had no prior field experience and did not value existing oversight infrastructure.

The management team assembled in 2002 was well versed in project management, but had no recent experience in field oversight. They were subsequently on a steep learning curve from the moment of their arrival, familiarizing themselves with project and management activities as well as the safety program. The three most important senior managers for safety issues at RFFO changed at essentially the same time resulting in a sharp loss in site corporate-level knowledge. Decisions to move away from the more

rigid structure of the CPOP, and formal systems such as RCATS (which is not user-friendly), are now known to have been premature and can be attributed to a lack of historical knowledge of these programs (why and how they were developed) and a lack of personal investment in these systems. The impending Reduction in Force, the extensive resources required to implement CPOP and RCATS, and the favorable safety performance data provided management sufficient information at that time to make the decisions. However, a streamlined replacement infrastructure should have been developed.

Supervision was less than adequate.

Staff work plans for 2003 specified oversight activities to be performed and methods for communicating results. Many staff were not supervised to their work plans, and revised work plans were not generated by their supervisors. Many supervisors were less demanding of their staff due to the impending Reduction in Force, and their desire to allow personnel to look for alternate employment.

The impending reduction in force impacted productivity.

The looming Reduction in Force reduced morale and many (not all) individuals' desire to perform their jobs at expected levels. Many staff member were allowed to pursue details at other federal agencies to assist in job placement. Performing job searches and preparing applications was allowed during the normal duty day, all of which impacted the productivity of the field office.

Safety personnel were often pitted against RFFO project personnel.

Part of the reason safety personnel felt safety had become less important was that they were confronted by RFFO project staff on safety issues. The safety staff indicated a discomfort with RFFO project personnel presenting the contractor's arguments, and believed this stemmed from a desire to accelerate schedule and indicated a loss of objectivity.

The role of the Safety Analysis Center (SAC) within the context of the RFFO oversight program was not documented.

The SAC has been in use for several years, but its role is not documented in any field office procedure or policy document. The transmittal of safety related issues and events to the SAC is not defined, nor is the end result of this transmittal. It appears to be a common perception that once an issue appears in a SAC report the originator is relieved of further action. This has created gaps in issue tracking and closure.

Issue 2 Root Cause: The methodology and expectations for performing work package reviews were inadequate.

With the exception of an informal outline for performing quarterly work package reviews, there were no procedures to detail how work package reviews were to be performed. The quality of the reviews and the resulting reports were dependent primarily on the experience, motivation, and integrity of the assessor. Considering the limited work control experience of several of the assessors this was a glaring omission.

Direct and Contributing Causes:

Supervision of the work package reviews was less than adequate.

There was little coordination or supervision provided for the review effort. Although supervision acknowledged that the products of the reviews were not always of sufficient quality, there was little effort placed in correcting the deficiencies. Supervision found it extremely difficult to motivate the staff due to the perception that their (Safety and Health Division personnel) efforts were not being supported by management.

Personnel performing the reviews were Subject Matter Experts in areas other than work control and lacked specific knowledge of work planning and execution.

Although most of the Safety Programs personnel attended customized training on reviewing work packages, they did not have adequate knowledge of the Integrated Work Control Program or possess the necessary assessor skills to effectively perform the reviews. The results (Findings) of many of the reviews were not defensible and thus were considered of little value by the contractor.

The work package selection process was poor.

In order to perform effective reviews of work packages, the choice of work packages should be based on the complexity of the activity and the risk/hazards associated with the performance of that activity. The work packages chosen in the majority of reviews did not consider these factors. The need to consider these factors had been discussed, but was not documented. Also, there was no consideration regarding the current status of the work packages (i.e., the best choice of work packages to review would be approved packages that have not yet commenced work). Many work packages that were reviewed were completed packages. There is little value in telling the contractor what they should have done after the work has been completed.